

REMARKS/ARGUMENTS

Claims 1, 2, 4-14, 17-23, 25-29 and 32-40 are pending in this Application. By this Amendment, claims 1, 2, 4, 6-9, 11, 12, 14, 17, 19, 21-23, 25, 27-29, 32 and 34 are amended, and claims 35-40 are added. The amendments and added claims introduce no new matter. Support for the amendments and added claims can be found, for example, on page 8, lines 11-24; page 9, lines 17-23; Figs. 2B and 3(A)-(C); and the original claims of Applicants' disclosure, as filed. Claims 3, 15, 16, 24, 30 and 31 are canceled without prejudice to, or disclaimer of, the subject matter recited in those claims. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

Rejection Under 35 U.S.C. §112

The Office Action rejects claims 1-21 under 35 U.S.C. §112, second paragraph. This rejection is respectfully traversed.

Without conceding the propriety of the rejection, and solely to advance prosecution of this application, Applicants submit that the amendments to claim 1 obviate the rejection under 35 U.S.C. §112.

Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §103

The Office Actions rejects claims 1-34 under 35 U.S.C. §103(a) over U.S. Patent No. 4,299,233 to Lemelson in view of U.S. Patent No. 5,406,952 to Barnes et al. (hereinafter "Barnes"). This rejection is respectfully traversed.

Without conceding the propriety of the rejection, and solely to advance prosecution of this application, independent claims 1, 22 and 32 are amended to clarify relevant features. The applied references would not have reasonably suggested such combinations of features for at least the following reasons.

Claim 1

To support a *prima facie* case of obviousness, the Examiner must demonstrate that each feature recited in the claims is found in the cited art, or provide explicit reasoning to support the finding that the features would have been obvious to one of ordinary skill in the art at the time the invention was made. See MPEP §§2141, 2142. The analysis of the Office Action fails to meet this standard at least with respect to the features recited in the independent claims.

Claim 1 recites, among other features:

an interface member configured to:
 present to the foot of the subject,
 to be maintained at a substantially constant pressure, and
 to function when in indirect contact with the subject's body;
a sensor module in communication with said interface member,
said sensor module configured to detect a pulse wave form from the foot
of the subject and a pulse rate of the subject when the foot of the subject is
presented to the interface member and the interface member is maintained
at the substantially constant pressure; [and]
a processor module configured to analyze the pulse wave form and
pulse rate signal and to derive a pulse pressure of the subject...

The applied references would not have reasonably suggested such a combination of features. For example, The Office Action relies on Lemelson as allegedly disclosing a corresponding “interface member” based on the bed assembly 10, and relies on Barnes as allegedly disclosing a corresponding processor. However, the combination of these references would not have reasonably suggested at least the features of a sensor module in communication with said interface member, said sensor module configured to detect a pulse wave form from the foot of the subject and a pulse rate of the subject when the foot of the subject is presented to the interface member and the interface member is maintained at the substantially constant pressure; [and] a processor module configured to analyze the pulse wave form and pulse rate signal and to derive a pulse pressure of the subject. The bed assembly 10 in Lemelson is not configured to present to the foot of the subject, as discussed in Applicants’ disclosure and as those terms would be understood by one of ordinary skill in the art. Moreover, the allegedly corresponding sensor 30 in Lemelson is not configured to detect a pulse wave form from the foot of the subject and a

pulse rate of the subject when the foot of the subject is presented to the interface member.

Barnes is not applied in a manner to overcome these shortfalls Lemelson.

Accordingly, reconsideration and withdrawal of the rejection of claim 1 are respectfully requested.

Claims 22 and 32

Claim 22 recites, among other features:

detecting a pulse wave form and pulse rate from a foot of the subject via an interface member, the foot of the subject presented to the interface member;

analyzing the pulse wave form and pulse rate signal and deriving a pulse pressure of the subject based on the analysis; and

outputting at least one of the pulse wave form, the pulse rate and the pulse pressure,

wherein the interface member is inflated and maintained at a substantially constant pressure and is configured to function when in indirect contact with the subject's body.

Claim 32 recites similar features. As mentioned above, Lemelson is relied on as allegedly disclosing a corresponding interface member. However, Lemelson does not disclose, nor can it reasonably be considered to have suggested, detecting a pulse wave form and pulse rate from a foot of the subject via an interface member, the foot of the subject presented to the interface member. Barnes is not applied in a manner to overcome this shortfall.

Accordingly, reconsideration and withdrawal of the rejection of claims 22 and 23 are respectfully requested.

Additionally, the combination of Lemelson and Barnes would not have reasonably suggested analyzing the pulse wave form and pulse rate signal and deriving a pulse pressure of the subject based on the analysis. As discussed further below, the different methods of operation of the Lemelson and Barnes devices are not combinable in the manner suggested, and, therefore, would not have rendered the above features obvious to one of ordinary skill in the art.

The references are not combinable in manner suggested.

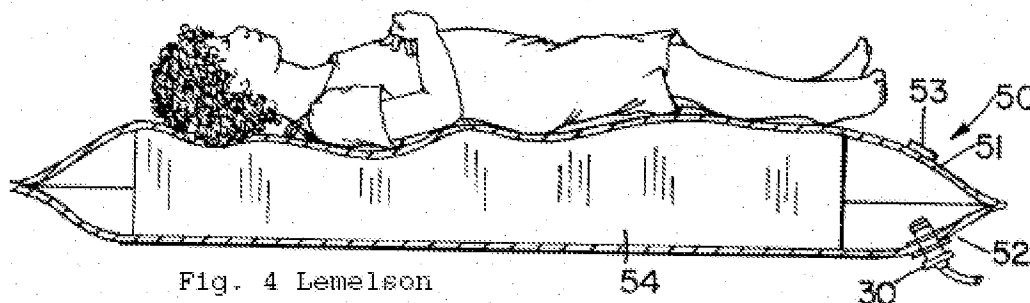
The Office Action concedes that Lemelson does not teach “a processor module that analyzes the pulse wave form and pulse rate signal for deriving variance of blood pressure”. The Office Action relies on Barnes to remedy this shortfall. In this regard, the Office Action asserts that it would have allegedly been obvious “to modify Lemelson’s processor module with Barnes’ processor module 200 that analyzes the pulse wave form and pulse rate signal for deriving variants of blood pressure...” However, such a modification would not have been obvious nor is there evidence that it would it have arrived at the subject matter of the pending claims.

Barnes describes a blood pressure monitor that attaches to a patient’s wrist and physically contacts the patient’s skin in order to detect pulse and blood pressure. Barnes uses a “vertical displacement transfer member 60 [which] has one end 62 extending through the central aperture 55 plastic disk 54 for contacting the patient’s wrist directly above the radial artery, and another end 64 attached to the center of the composite piezoceramic transducer disk 52.” (See column 3, lines 28-33 of Barnes). Barnes utilizes a non-inflated interface member to directly contact the subject body in order to determine the patient’s blood pressure.

Lemelson states that a patient or person can be placed on a mattress to monitor “heart beat, heart rate and respiration rate”. An embodiment of Lemelson utilizes a mattress with a liquid filling to “modulate or generate an electrical signal or signals, variations of this define such body vibrations generated by heart beats, respiration and body tremors” (see column 3, lines 45-53 of Lemelson). Significantly, Lemelson does not describe the generation of a pulse wave form as suitable for analysis to derive pulse pressure, nor does Barnes indicate that the processes disclosed therein could be accomplished using the sensor data derived in Lemelson. Applicants submit that the bed and sensor systems in Lemelson do not reasonably correspond to the system described in Barnes in such a way as to support the assertion that the processor of Barnes could be simply “substituted” into the Lemelson system.

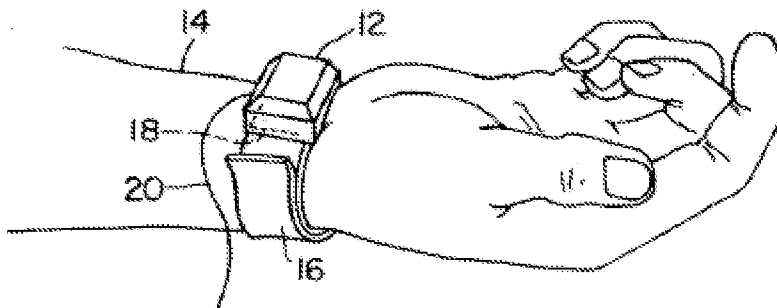
There is no reasonable suggestion that the “module 200” of Barnes could have simply been substituted in to the Lemelson device and used to analyze a pulse wave form and pulse rate signal and to derive a pulse pressure of the subject. For example, there is no reasonable suggestion that the processor in Barnes is compatible with the sensor, and related sensor readings, from Lemelson in a manner that would allow for the recited analysis and derivation of

a pulse pressure of the subject. Lemelson uses a sound-to-electric transducer in assembly 30 to detect “heart beat, respiration and other sounds” of a patient lying on bed assembly 50.



Barnes uses a mechanical device that contacts the patient's wrist and flexes a disc in response to displacement of the radial artery.

Fig. 1 Barnes



These devices use different operational principles, different mechanisms, and measure different physiological evidence. One of ordinary skill in the art looking at Barnes would understand that the processing is linked to the displacement measurements that are used to determine blood pressure values. (See column 3, lines 63-65 of Barnes). The applied references do not suggest that this would be obviously accomplished using the “heart beat, respiration and other sounds” detected by the Lemelson device. Modifying Lemelson to include sensors such as in Barnes would, at best, impermissibly alter Lemelson’s method of operation and objects, which are described as providing a patient monitoring system “without the need to connect wires or sensing devices to the body of the patient.” (See column 2, lines 20-26 of Lemelson). In this

regard, Lemelson teaches away from the sensor configuration relied on in Barnes for deriving the wave form pattern in Barnes.

Dependent Claims

Solely to advance prosecution of the present application, several dependent claims are discussed in further detail below. However, the omission of a dependent claim or feature from this discussion is not an indication of agreement with the Office Action's analysis.

Claims 17, and 35-40

Claim 17 recites, among other features, wherein said interface member is included in at least one of a scale, a bath mat, a shoe, a slipper, and a sandal. Claims 35 and 35 recite similar features. The applied references would not have reasonably suggested such features. For example, as indicated above, the Office Action relies on Lemelson as allegedly disclosing a corresponding “interface member,” based on the bed assembly 10/50. However, the bed assembly 10/50 in Lemelson does not reasonably correspond to an interface member included in at least one of a scale, a bath mat, a shoe, a slipper, and a sandal. Additionally, it would not have been obvious to have modified the bed assembly in Lemelson to arrive at such features based on the evidence of record.

Claim 37 recites, among other features, wherein said interface member is included in a scale, and the system is configured to detect the pulse wave form when the subject stands on the scale. Claims 38 and 39 recite similar features. The applied references would not have reasonably suggested such features for at least the reasons discussed above with respect to the bed assembly 10 in Lemelson, which does not reasonably correspond to a scale. Additionally, the applied references would not have reasonably suggested the system being configured to detect the pulse wave form when the subject stands on the scale.

Claim 40 recites, among other features, wherein said interface member is included in at least one of a shoe, a slipper, and a sandal, and the system is configured to detect the pulse wave form when the subject wears the at least one of a shoe, a slipper, and a sandal. The applied references would not have reasonably suggested such features for at least the reasons discussed above with respect to the bed assembly 10 in Lemelson, which does not reasonably correspond to

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at least one of a shoe, a slipper, and a sandal. Additionally, the applied references would not have reasonably suggested the system being configured to detect the pulse wave form when the subject wears the at least one of a shoe, a slipper, and a sandal.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance and an action to that end is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 202-481-9900.

The Commissioner is authorized to charge any fees due or credit any overpayment to the deposit account of Townsend and Townsend and Crew LLP, Deposit Account No. 20-1430.

Respectfully submitted,

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